

Mineral Industry Surveys

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MANGANESE IN AUGUST 1999

In August, reported consumption of manganese ore containing 35% or more manganese, exclusive of that at iron and steel plants, was 40,000 metric tons, which was a slight increase compared with the revised figure of 39,400 tons for the previous month, according to the U.S. Geological Survey. This brought the revised year-to-date total to 300,000 tons. The figures for August increase to 44,200 tons and 334,000 tons when estimates for annual respondents are added on the basis of 1998 data. Corresponding industry stocks of ore at the end of the month were 164,000 tons, which includes an estimate for annual respondents on the basis of 1998 data. This was a decrease of about 4% compared with the revised figure of 170,000 tons for stocks at the end of July. (Data for the most recent 13 months are shown on page 2.)

Data for domestic consumption and stocks of manganese ferrowells and metal for the April through June quarter of 1999 will appear in a subsequent monthly report.

Foreign trade data for August will appear in a subsequent report. For July, the data tabulated in this report indicate that the number of manganese units imported as ore and in total were the greatest in at least 15 years, largely a result of imports of ore from Morocco. The monthly quantity for manganese units exported as ferromanganese was the least since September 1997. **Note:** For early availability, the trade data appearing in this report are being placed on MINES FaxBack in preliminary form. The data for July were placed on FaxBack as of September 27. The FaxBack document number for the August trade data will be 420208.

The Defense Logistics Agency (DLA), U.S. Department of Defense, reported for August a cash disposal of 481 tons of electrolytic manganese metal from the National Defense

Stockpile, all to Eramet Marietta, Marietta, OH (plant formerly belonged to Elkem Metals Co.). DLA also reported that the status of 976 tons of stockpile-grade metallurgical-grade ore had reverted from sold to inventory as a result of a contract modification.

In the Caucasian republic of Georgia, Saga-print, a Czech investment company, was the successful bidder in the latest auction for shares in Chiaturmanganets. Saga-print acquired a 75% interest in a now dormant but formerly large producer of manganese ore. Annual production of concentrate at Chiatura is projected to reach 50,000 tons within 1 year and to rise to 200,000 tons within 4 years (Interfax Mining & Metals Report, 1999; Mining Journal, 1999).

In Israel, research on battery systems based on use of iron in an unusual hexavalent form indicated the possibility for developing dry cells with performance superior to that of manganese-containing alkaline batteries. Instead of manganese dioxide, salts such as K_2FeO_4 or $BaFeO_4$ serve as cathode in a so-called "super-iron" battery. The new battery systems also appear to have good potential for being rechargeable (Licht, Wang, and Ghosh, 1999).

References Cited

- Interfax Mining & Metals Report, 1999, Georgian manganese giant to achieve full capacity in four years: Interfax Mining & Metals Report, v. 8, issue 37, September 3-9, p. 12-13.
- Licht, Stuart, Wang, Baohui, and Ghosh, Susanta, 1999, Energetic iron(VI) chemistry—The super-iron battery: Science, v. 285, no. 5430, August 13, p. 1039-1042.
- Mining Journal, 1999, Saga-print wins Chiaturmanganets stake: Mining Journal, v. 333, no. 8546, August 27, p. 158.

TABLE 1
SELECTED U.S. FOREIGN TRADE IN MANGANESE 1/

(Metric tons, manganese content) 2/

	Imports for consumption			Exports		
	Ore and dioxide	Ferroalloy and metal	Total	Ore	Ferroalloy and metal	Total
1998: 3/						
July	23,700	44,800	68,500	132	1,910	2,040
January-July	110,000	316,000	426,000	870	13,200	14,000
1999:						
January	16,300 4/	48,300 4/	64,600	95 r/	1,850	1,940 r/
February	17,900 4/	40,700 4/	58,700	13	1,160	1,170
March	22,100 4/	40,100 4/	62,200	75	1,500	1,570
April	18,300 4/	39,800 4/	58,100	24 r/	1,250	1,280 r/
May	33,100 4/	23,900 4/	57,000	135	1,370	1,500
June	31,900 4/	47,800 4/	79,700	46	1,270	1,320
July	67,200 4/	29,700 4/	96,900	385	1,190	1,570
Total	207,000	270,000	477,000	773	9,580	10,400

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ As reported except as estimated for imports of manganese dioxide and manganese waste and scrap and for exports from gross weights.

3/ Data may include revisions by the Bureau of the Census.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 2
U.S. IMPORTS FOR CONSUMPTION OF SILICOMANGANESE IN JULY 1999 1/

(Metric tons)

Source	Gross weight	Mn content	Customs value	Year to date		
				Gross weight	Mn content	Customs value
Australia	15,400	10,300	\$5,670,000	40,700	27,300	\$14,900,000
France	--	--	--	6,740	4,500	2,930,000
Georgia	--	--	--	2,500	1,880	1,000,000
India	--	--	--	4,250	2,720	1,650,000
Kazakhstan	--	--	--	9,170	6,200	3,430,000
Mexico	--	--	--	34,800	22,800	14,800,000
South Africa	8,000	5,420	3,130,000	47,100	31,800	18,400,000
Ukraine	--	--	--	8,190	6,030	2,850,000
Venezuela	--	--	--	9,000	5,910	3,300,000
Total	23,400	15,700	8,800,000	163,000	109,000	63,200,000
Total, general imports	23,400	15,700	8,800,000	162,000	109,000	62,900,000

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 3
U.S. IMPORTS FOR CONSUMPTION OF FERROMANGANESE IN JULY 1999 1/

(Metric tons)

Source	Gross weight	Mn content	Customs value	Year to date		
				Gross weight	Mn content	Customs value
Low carbon:						
China	60	57	\$57,500	939	812	\$898,000
Italy	506	423	431,000	2,700	2,370	3,340,000
Japan	2,500	2,130	1,950,000	6,500	5,540	5,610,000
Mexico	100	80	92,100	518	418	471,000
Netherlands 2/	43	45	31,700	43	45	31,700
Russia	--	--	--	21	6	17,700
Slovenia	9	7	5,220	9	7	5,220
South Africa	20	18	35,200	624	579	1,080,000
Ukraine	--	--	--	60	57	64,800
United Kingdom	--	--	--	445	417	296,000
Total, low carbon	3,240	2,760	2,600,000	11,900	10,300	11,800,000
Total, general imports of low carbon	3,240	2,760	2,600,000	11,900	10,300	11,800,000
Medium carbon, 1%-2% C:						
France	--	--	--	1,370	1,120	773,000
Japan	--	--	--	212	181	265,000
Korea, Republic of	2,850	2,320	1,670,000	8,550	6,960	5,000,000
Mexico	--	--	--	17,200	13,900	9,960,000
Norway	--	--	--	20	9	18,600
South Africa	900	722	540,000	12,700	10,300	7,590,000
Total, m.c., 1%-2% C	3,750	3,040	2,210,000	40,100	32,400	23,600,000
Total, general imports of m.c., 1%-2% C	3,750	3,040	2,210,000	40,100	32,400	23,600,000
High carbon:						
Australia	3,200	2,420	1,130,000	4,080	3,110	1,940,000
Brazil	--	--	--	6,580	5,000	2,430,000
China	--	--	--	2,000	1,500	721,000
France	--	--	--	65,900	50,700	33,900,000
Saudi Arabia	1,270	994	463,000	1,270	994	463,000
South Africa	5,200	3,970	1,710,000	63,200	49,100	24,900,000
Total, high carbon	9,670	7,380	3,300,000	143,000	110,000	64,300,000
Total, general imports of high carbon	9,670	7,380	3,300,000	143,000	110,000	64,300,000
Grand total	16,700	13,200	8,120,000	195,000	153,000	99,700,000
Grand total, general imports	16,700	13,200	8,120,000	195,000	153,000	99,700,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 4
U.S. IMPORTS 1/ OF MANGANESE ORE (20% OR MORE MN) IN JULY 1999 2/

(Metric tons)

Source	20% - 47% Mn		47% or more Mn		Total	
	Gross weight	Mn content	Gross weight	Mn content	Gross weight	Mn content
Belgium	138 3/	55 3/	--	--	138	55
Gabon	--	--	31,900	15,800	31,900	15,800
Mexico	280	123	--	--	280	123
Morocco	--	--	100,000	50,000	100,000	50,000
Total	418	179	132,000	65,700	132,000	65,900
Year to date:						
Australia	--	--	25,400	13,300	25,400	13,300
Belgium	138	55	7,260	6,680	7,400	6,740
Brazil	--	--	2	1	2	1
China	--	--	40	33	40	33
Gabon	16,400	8,000	153,000	69,100	170,000	77,100
Ghana	26,100	10,200	--	--	26,100	10,200
Mexico	15,300	5,830	1,090	523	16,400	6,350
Morocco	--	--	100,000	50,000	100,000	50,000
South Africa	--	--	58,000	29,200	58,000	29,200
Total	58,000	24,100	345,000	169,000	403,000	193,000

1/ Quantities for general imports and imports for consumption are identical.

2/ Data are rounded to three significant digits; may not add to totals shown.

3/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF MANGANESE DIOXIDE AND MANGANESE METAL IN JULY 1999 1/

(Metric tons, gross weight)

Source	Manganese dioxide				Manganese metal			
	Quantity	Customs value	Year to date		Unwrought		Other	
			Quantity	Customs value	Quantity	Year to date	Quantity	Year to date
Australia	832	\$1,190,000	12,000	\$16,900,000	--	--	--	--
Belgium	55	78,800	348	548,000	--	--	--	--
Canada	--	--	--	--	--	--	1	2
China	3	3,240	7	10,200	60	1,280	--	416
France	--	--	23	68,500	--	--	7	24
Germany	8	40,700	43	229,000	11	184	7	72
Greece	--	--	16	21,500	--	--	--	--
India	--	--	--	--	--	--	--	16
Ireland	789	1,100,000	4,000	5,650,000	--	--	--	--
Japan	--	--	16	21,400	--	--	--	4
Mexico	--	--	--	--	--	--	--	20
Netherlands	--	--	--	--	--	--	--	18
South Africa	367	517,000	6,490	9,210,000	706	5,610	--	--
Spain	--	--	--	--	--	36	--	--
Ukraine	--	--	--	--	--	122	--	--
United Kingdom	--	--	82	211,000	--	285	(2/)	(2/)
Total	2,060	2,930,000	23,000	32,800,000	778	7,510	16	572
Total, general imports	2,040	2,900,000	23,000	32,900,000	766	7,790	16	572

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Note: Imports for consumption of metallic manganese waste and scrap totaled 62 tons, all of which was from Canada, to give a year-to-date total of 109 tons.

Source: Bureau of the Census.

TABLE 6
U.S. EXPORTS OF MANGANESE ORE (20% OR MORE MN), FERROMANGANESE,
SILICOMANGANESE, AND MANGANESE METAL BY COUNTRIES OF DESTINATION IN JULY 1999 1/

(Metric tons, gross weight)

	Manganese ore		Ferromanganese, 2% or less C		Silicomanganese		Manganese metal 2/	
	July	Year to date	July	Year to date	July	Year to date	July	Year to date
Australia	--	1	--	--	--	15	(3/)	(3/)
Belgium	--	--	--	--	--	--	--	39
Brazil	--	--	--	--	--	--	--	124
Canada	23	564	91	2,350	192	1,850	112	822
Colombia	--	--	--	--	--	--	19	19
France	--	--	--	--	--	14	--	--
Germany	--	--	--	--	--	--	--	1
Hong Kong	--	--	--	--	--	--	(3/)	(3/)
India	--	--	--	--	--	--	--	1
Israel	--	--	--	--	--	--	--	--
Italy	--	--	--	--	--	--	30	10
Japan	--	--	--	--	--	--	--	460
Korea, Republic of	--	63	--	--	--	--	--	11
Mexico	--	--	--	17	35	123	73	54
Netherlands	--	--	--	--	--	19	--	186
Peru	--	36	--	--	--	--	--	--
Singapore	747	747	--	--	--	--	--	--
Spain	--	--	--	--	--	10	--	(3/)
Sweden	--	--	--	--	--	--	20	59
Switzerland	--	--	--	--	--	--	--	--
Taiwan	--	--	--	--	--	--	--	7
United Kingdom	--	136	--	--	--	--	175	485
Total	771	1,550	91	2,370	227	2,030	430	2,280

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes manganese-aluminum, some other alloys, and waste and scrap.

3/ Less than 1/2 unit.

Note: Exports of ferromanganese with more than 2% carbon totaled 676 tons, of which 616 tons went to Canada and 60 tons went to Mexico, to give a year-to-date total of 5,190 tons.

Source: Bureau of the Census.

TABLE 7
U.S. FOREIGN TRADE IN SELECTED MANGANESE CHEMICALS IN JULY 1999, BY CLASS 1/

Class	Gross weight (metric tons)	Value 2/ (thousands)	Principal sources and destinations: gross weight (metric tons); value (thousands) 2/	Year to date		
				Gross weight (metric tons)	Value 2/ (thousands)	Principal sources and destinations: gross weight (metric tons); value (thousands) 2/
<u>Imports for consumption:</u>						
Manganese oxides other than dioxide	63	\$127	Japan 25; \$77	797	\$1,040	Mexico 300; \$67
Sulfates, basket category, including manganese sulfate	2,980	1,620	China 1,330; \$295	23,800	12,300	Mexico 11,700; \$5,910
Potassium permanganate	110	215	Czech Republic 53; \$101	801	1,520	Czech Republic 389; \$724
Manganites, manganates, and other permanganates	--	--	--	(3/)	3	United Kingdom (3/); \$3
<u>Exports:</u>						
Manganese dioxide	248	285	Canada 133; \$105	5,400	5,430	United Kingdom 2,250; \$1,400
Manganese oxides other than dioxide	290	188	Canada 239; \$94	2,410	2,250	Canada 1,790; \$726
Sulfates, basket category, including manganese sulfate	1,230	824	Canada 924; \$328	13,200	5,520	Canada 11,300; \$3,320
Potassium permanganate	127	252	United Kingdom 60; \$124	736	1,340	Germany 218; \$431
Manganites, manganates, and other permanganates	29	154	Germany 15; \$107	178	870	United Kingdom 75; \$502

1/ Data are rounded to three significant digits.

2/ For imports, Customs value; for exports, f.a.s. value.

3/ Less than 1/2 unit.

Source: Bureau of the Census.